COURSE DATA

DATA SUBJECT

Code: 46496
Name: Molecular basis of development and liver function
Cycle: Master's Degree
ECTS Credits: 4.5
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
2254 - Master's Degree in Molecular Approaches in Health Sciences	Facultat de Medicina i Odontologia	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
2254 - Master's Degree in Molecular Approaches in Health Sciences	Biotransformation, metabolism of drugs and xenobiotics	COMPULSORY

COORDINATION

JOVER ATIENZA RAMIRO

O'CONNOR BLASCO JOSE ENRIQUE

SUMMARY

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

COMPETENCES / LEARNING OUTCOMES

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Aprender a identificar, manejar y presentar adecuadamente en informes y exposiciones públicas, conocimientos existentes sobre aspectos básicos y clínicos de del desarrollo embrionario del hígado, el control génico de su fenotipo y la regulación del metabolismo hepático.

Conocer, comprender y manejar en la práctica métodos y técnicas de biología molecular aplicados al estudio de la regulación del desarrollo y de la función hepática.

Conocer en profundidad y comprender la organización a nivel molecular de células, sistemas y procesos de relevancia en las Ciencias de la Salud.

Conocer en profundidad y comprender las bases moleculares de la enfermedad.

Conocer en profundidad y comprender las metodologías de investigación básica aplicables a las Ciencias de la Salud.

Conocer y comprender los conceptos básicos sobre las bases moleculares del desarrollo embrionario del hígado y del control del fenotipo hepático, así como las implicaciones clínicas derivadas de las alteraciones de estos procesos.

Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.

Students should be able to integrate knowledge and address the complexity of making informed judgments based on incomplete or limited information, including reflections on the social and ethical responsibilities associated with the application of their knowledge and judgments.

Students should communicate conclusions and underlying knowledge clearly and unambiguously to both specialized and non-specialized audiences.

Students should demonstrate self-directed learning skills for continued academic growth.

Students should possess and understand foundational knowledge that enables original thinking and research in the field.

Tener capacidad de analizar y sintetizar un problema.

Tener capacidad de comunicación oral y escrita en una segunda lengua científica.

Tener capacidad de desarrollar un trabajo interdisciplinar.

Tener capacidad de localizar información.

Tener capacidad de trabajar en equipo

DESCRIPTION OF CONTENTS

1.

2.

3.

4.

5.

6.

7.

8.

9.

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11.

12.

13.

14.

15.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	20,00
Seminar	10,00
Laboratory	5,00
Group work	10,00
Total hours	**45,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	0,00
Preparation of lessons	0,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**0,00**

TEACHING METHODOLOGY

EVALUATION

REFERENCES

- The liver: biology and pathology. Editor: Irwin M. Arias; James L. Boyer; etc. Lippincott Williams & Wilkins, 2001. Desvergne B, Michalik L, Wahli W. Transcriptional regulation of metabolism. Physiol Rev. 2006; 86(2):465-514 Pinzani M, Dooley JS, Lok ASF, Garcia-Tsao G. Sherlock's

Diseases of the Liver and Biliary System. Wiley-Blackwell; 2018. Friedman L, Martin P. Handbook of Liver Disease. 4th ed. Elsevier Health Sciences; 2018 Schiff ER, Maddrey WC, Reddy KR. Schiff's Diseases of the Liver. 12th ed. Newark: John Wiley & Sons, 2017 Sanyal AJ, Terrault NA, Lindor KD, Boyer TD. Zakim and Boyer's Hepatology: A Textbook of Liver Disease. Seventh;7; ed. US: Elsevier; 2016.

- Manipulating the mouse embryo: a laboratory manual. Editor: Andras Nagy. Cold Spring Harbor (NY): Cold Spring Harbor Laboratoty Press, 2003. Schrem H, Klempnauer J, Borlak J. Liver-enriched transcription factors in liver function and development. Part I: the hepatocyte nuclear factor network and liver-specific gene expression. Pharmacol Rev. 2002; 54(1):129-58. Schrem H, Klempnauer J, Borlak J. Liver-enriched transcription factors in liver function and development. Part II: the C/EBPs and D site-binding protein in cell cycle control, carcinogenesis, circadian gene regulation, liver regeneration, apoptosis, and liver-specific gene regulation. Pharmacol Rev. 2004; 56(2):291-330.